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CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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SUBJECT Germanium Transistor Development at VEB Werk fuer Fernmeldewesen (OSW) Berlin-Oberschoeneweide

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THIS IS UNEVALUATED INFORMATION

1. Point-contact germanium transistors development was started in 1950, upon Soviet orders, by the VEB Werk fuer Fernmeldewesen (formerly OSW) in Berlin-Oberschoeneweide under the supervision of Dr. Bingel (fnu). This work continued without [redacted] for a rather long period and Dr. Bingel was finally relie[redacted] functions[1]. During the last two [redacted] been headed successively by Dr. [redacted] returnee from the Soviet Union. [redacted] for the scientific supervision of OSW [redacted] development. He is assisted by Dipl. Phys. Boell (fnu) who is in charge of germanium technology, i[redacted] germanium purification. In late 1953, Dr. Rohde submi[redacted] report (Abschlussbericht) on the development to the Cen[redacted] Research and Technology (Zentralamt fuer Forschung und Technik-ZAFT) of the State Planning Commission in which the successful termination of the development was repo[redacted] requests for a new order bearing on the production of the de[redacted] report, however, was premature and contained many e[redacted] later when the report was made available to the Work Circle for Semiconductors (Arbeitskreis Halbleiter). A few samples of model transistors which were completed by the OSW team when the report was forwarded to ZAFT, turned out to be faulty. The germanium monocrystals used were not sufficiently pure and had not even been provided with defined impurities. The OSW enterprises did not obtain the expected production order but continued the development of germanium transistors. The mentioned termination report to ZAFT was [redacted] corrected several [redacted] during the period from January throug[redacted] 54. By August [redacted] 954, a few new sample models, which were [redacted] improved versi[redacted] the first ones, were completed. However, these models still were unusable. The OSW developmen[redacted] carried on the development and the firm still hopes [redacted] ain a production order from the government, in spite of th[redacted] the meantime the VEB W[redacted] Nachrichtentechnik, Carl von Ossietzky (former[redacted] successfully completed germanium transis[redacted] ork at this plant had started much later than the OSW development. The OSW firm hopes to reverse a preliminary decision by the State Planning Commission to the effect that [redacted]

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This hope is based on the fact that the management of OSW has better political relations with the government than that of Dralowid.

2. Boell (fnu) has used the Bridgeman method for the purification of the OSW germanium. Before being subjected to purification by this method the germanium was purified chemically. It was first transformed into germanium tetrachlorid[redacted]fied through fractionized distillati[redacted]e resulting germanium dioxide was the[redacted] to pure germanium. For Bridgeman p[redacted], the germanium was put into a graphite container 400 millimeters long, with an internal diameter of 3 mm. This container was inserted into an evacuat[redacted] was ten power minus 3 (10^{-3}[redacted] in it was brought into a me[redacted] melting of the germanium, [redacted] drawn out of the oven at a speed of 400 [redacted] per hour. The maximum purity of the germanium monocrystals thus obtained was 12 ohm centimeters. Most of the monocrystals, however, had purity degrees of 2 and 4 ohm centimeters only. In view of this low purity degree, the development team was forced to make transistor samples directly from these monocrystals and did not even attack the problem of providing pure germanium monocrystals with defined impurities. After August 1954, the OSW development team started to build an installation for production of pure germanium crystals by the zone melting procedure (Zonenschmelzverfahren)[2]. No conclusive results have been obtained so far.

3. It is estimated that the OSW firm has spent an amount of 600,000 to 700,000 DME for the transistor development since it started in 1950, including funds provided by the Soviets.

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